

COAL

MINING

UNIVERSITY MICROFILMS
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ANN ARBOR, MICH

August, 1960

Volume 37, No. 8

rugged equipment for tough jobs...



Allis-Chalmers HD-21 strips overburden at Isman Bros., New Bethlehem.

A-2388A

Highway



HIGHWAY EQUIPMENT COMPANY

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BLASTING IS OUT— D9 AND RIPPER IN— PRODUCTION

UP 35%

Gillen Coal Mining, Inc., is salvaging a six-ft.-thick seam of coal near Carbondale, Pa. To get to the coal, 180 ft. of overburden must be removed—10 ft. of topsoil, 100 ft. of hardpan and, finally, 70 ft. of rock.

Gillen used to blast through. Then they changed to a Caterpillar D9 Series E Tractor with a No. 9 Ripper. Production shot up 35%. Cost savings are estimated to be 60%!

The overburden, rough as it is to work with, is the kind of material the D9 and No. 9 Ripper eat up. Working in 50-ft. passes, the team fragments the hardpan (average cu. yd. weight 3200 lb.) into right-size pieces for two Cat DW21s. They're moving up to 4000 yd. a seven-hour shift. When needed, the D9 pushloads the scrapers and 'dozes, too.

The D9 and No. 9 is an all-business combination of power and speed. The Series E Model D9 has a 335 HP (flywheel) turbocharged engine to put massive power into the work. You get more power from every gallon of fuel. The Series E D9 has a heavier undercarriage. Track components are bigger, heavier. You get up to 40% more

life with deeper hardened steel shoes, links and rollers. A new equalizer bar makes the Series E D9 even more stable.

New power shift transmission gives you the flexibility and anti-stall features of a torque converter with the split-second snap of direct drive. Finger-tip control gives operators instant changes under full load without clutching.



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BUCKHANNON PIKE, CLARKSBURG, WEST VIRGINIA

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COAL MINING

Vol. XXXVII August, 1960 No. 8

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Davey Model M-75A Rotary Drill coal testing for Harbaugh Coal Co., Madison, Pa.
Working in the woods, it is drilling 300 ft. holes.



a modern drill for modern mining

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. . . these are just a few of many reasons why more and more leading mine operators and coal drilling contractors are standardizing on Davey.

Available in 8 air blast, mud pump or combination models, Davey drills are either truck or crawler tractor mounted. Rated capacities to 3,500 ft.

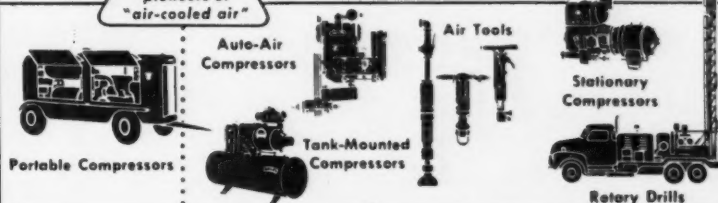
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DAVEY COMPRESSOR CO.

Kent, Ohio



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Another Money-Saving Tip

from **BECKWITH**

**No Immediate Cash Outlay
for Rebuilt Undercarriages!**

For only

\$220⁰⁰ *a month**

... No Down Payment

You can put

a

BECKWITH REBUILT UNDERCARRIAGE

- Rebuilt Rails
- Rebuilt Rollers
- Rebuilt Sprockets

on your D8 (Standard) Tractor

*For twelve months on a collateral loan basis!

WHERE ELSE BUT AT BECKWITH CAN YOU FIND SUCH EASY TERMS PLUS QUALITY WORKMANSHIP?

"Low terms, comparable to the example on the opposite page, are available for Financing Beckwith-Rebuilt Undercarriages on all models of Caterpillar track-type tractors.

You can order your undercarriage replacement with rebuilt rails or new links . . . with Beckwith-Rebuilt Rollers or all new Caterpillar rollers . . . with new or rebuilt sprockets.

You name it and we'll do the very best we can to please you with special financing arrangements. I'll be happy to give you my personal attention." . . . Tom Tyson, Credit Mgr.



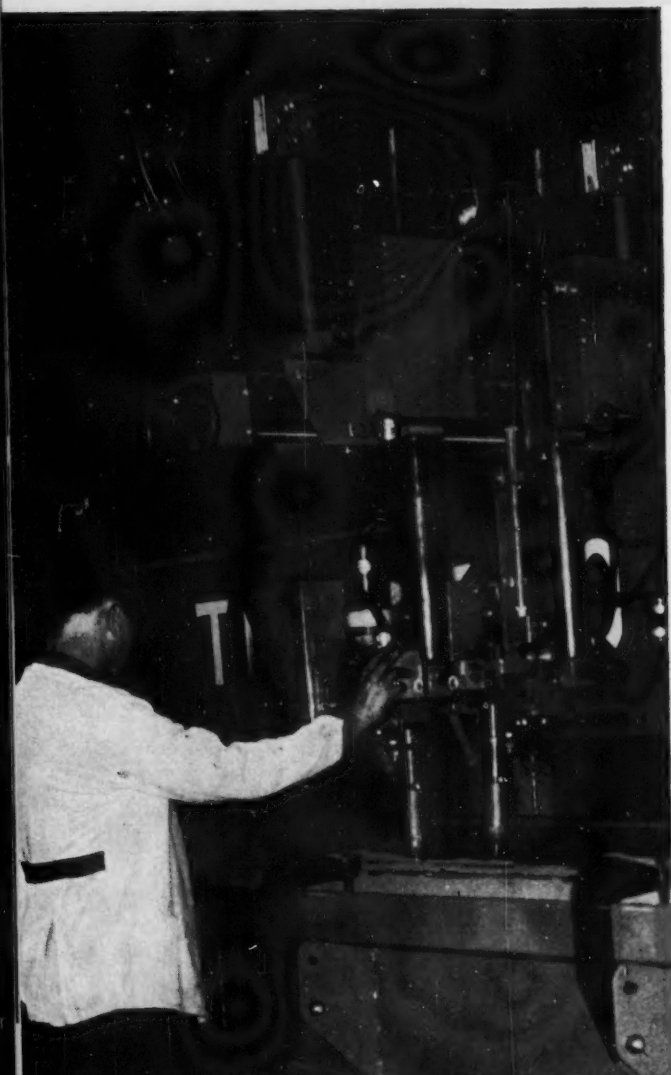
Easy financing is important! Low cost is important, too! But combine these advantages with unmatched craftsmanship, quality control, use of the most precise automatic welding machinery combinations in the East...and you can't go wrong.

A Beckwith Rebuilt Undercarriage renews your machine's earning capacity, extends its productive life, gives you greater value at trade-in time. Furthermore, we'll work our welding department around-the-clock...without overtime charges . . . to speed your tractor back to earth-moving. Downtime is cut to a minimum by our fast welding service as well as our speedy No-Charge pick-up and delivery.

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Time Is Running Short For Coal Mining Man To Come To Terms With Automation

● New things and new ideas have always intrigued man's sensibilities. Man has always accepted whatever price was necessary for his explorations and discoveries.

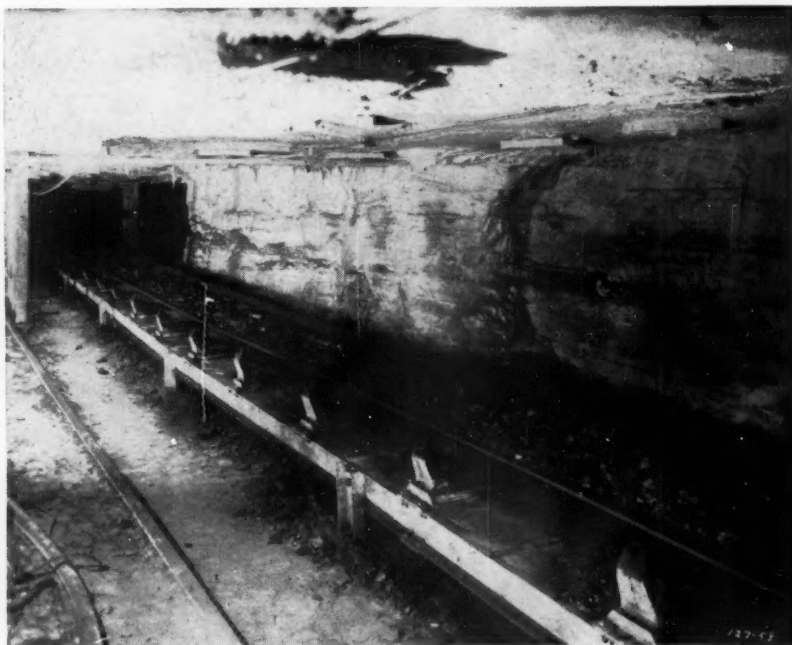
New things and new ideas spring from a better understanding of nature, coupled with systemized knowledge and applied in seeking desired answers from nature. Understanding of nature comes through reasoning. Following out a chain of constructive reasoning in order to accomplish what is desired for advancement is a great thrill in human evolution.

Man has been given a mind for finding out who he is and where he stands. The almost unlimited reserve of coal does not make the coal mining man a darling of the Gods. Newer things and newer ideas are rapidly bringing the need for changes in the coal industry. Present competition has been making constant inroads into the coal market, necessitating downward revisions in production schedules. Present knowledge

of new, yet undeveloped energy sources indicates newer fuels that will serve man better and might entirely displace coal as a fuel. The talk of a demand for 750 million tons of coal by 1965 and 1,000 million tons by 1970 is wishful thinking and has led the coal man into a false complacency.

Coal will have a market for the rest of our lives and longer. How much longer will depend on how well the coal industry keeps pace with industrial progress. At the moment equality with present competition is miserably lacking. The coal industry is drifting and drifting leads to degeneration and finally extinction. Future effort has got to be swift and decisive.

The coal man must take a hand in determining his future. The coal industry needs in it people who think, people who are willing to take risks. Time is running short for the coal man to come to term with automation, which is his only salvation.



Jeffrey Model 80-A conveyor at the Nashville Coal Co. Fies, Kentucky

THIS IS MSA: Illumination • Electronic Communication and Control • Rock Dusting and Dust Collecting • Fire Fighting Equipment • Respiratory Protection • Artificial Respiration Equipment • Personal Protective Wear • First Aid Equipment • Permanent and Portable Instruments

So much depends on unfailing light

Men and machines cannot work at peak productivity without proper illumination. Poor light means unsafe working conditions. Without light there is no work, no production underground. Illumination is *that* important.

Through years of close cooperation with the mining industry, Mine Safety Appliances has developed a quality line of illumination products that put all-important unfailing light underground. And, all MSA products are backed

up by a network of sales, service and warehouse facilities.

MSA illumination products include miners' Edison electric cap lamps, permissible trip lamps and fluorescent mine lighting systems. Automatic lamp charging equipment is supplied for self-service lamphouse installations.

Contact your MSA representative for additional information. Or, write Mine Safety Appliances Company, 201 N. Braddock Ave., Pittsburgh 8, Pa. In Canada: Mine Safety Appliances Company of Canada Ltd., 500 MacPherson Ave., Toronto 4, Ont.



144,292

IN ELEVEN MONTHS

This big McCarthy Auger mined 144,292 tons in eleven months in east Kentucky. That's bigger tonnage than many 100-man underground operations produce. And it was done with a two-man drilling crew!

Two big facts loom large in tonnage like this:

RUGGED CONSTRUCTION AND OUTSTANDING DESIGN which hold downtime to a minimum. . .

HYDRAULIC JACKS AND SKIDS which move the auger from hole to hole. No need to wait for the 'dozer.

The only time drilling slowed up was when haulage roads became impassable. The big drill works under almost "swamped" pit conditions. Pits can be as narrow as 30 feet. Highwalls can curve in or out. Coal of any density can be drilled with ease. Recovery rate is the best in the field!

If you'd like **FACTS and FIGURES** on the cost of augering, with a McCarthy, write directly to us or contact your nearest Salem distributor. Initial investment is less; pit-to-pit moves faster; set-up quicker. What's more . . . you can switch auger sizes at no added investment.

Add it up . . . augered coal costs less with a McCarthy!

RUGGED AUGER works tight against the face. Operator can see entire highwall and observe rapid flow of coal. Only two-man crew required.



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Birmingham 4, Alabama

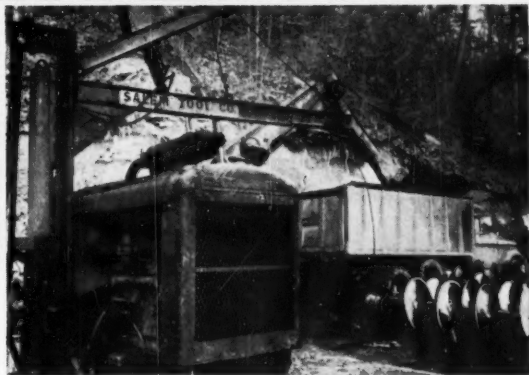
WHITMYRE EQUIPMENT COMPANY
Bethel Park, Pa.

WILSON MACHINERY & SUPPLY CO.
Lexington, Kentucky

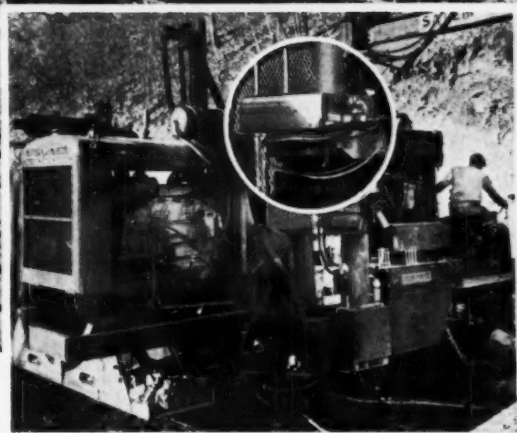
NIXON MACHINERY & SUPPLY CO.
Chattanooga 1, Tenn. Knoxville, Tenn. Nashville, Tenn.

RISH EQUIPMENT CO.
Bluefield, W. Va. Charleston, W. Va. Clarksburg, W. Va. Coeburn, Va.
Parkersburg, W. Va. Columbus, Ohio Youngstown 7, Ohio

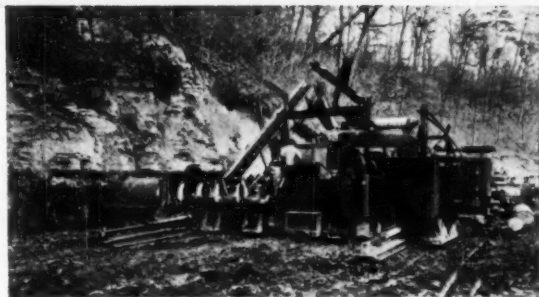
TONS



POWER-LADEN diesel engine travels smoothly on cam rollers. Advance and return are fast. Side boom has hydraulic lift and swing. Drill has low center of gravity. (ABOVE)



MODERN AUGER MINES utilize two-way radio. Big tonnages made possible by powerful McCarthys have boosted auger mining into big tonnage, high-profit class. (TOP RIGHT)



EXTENDED SKIDS smoothly position drill without 'dozer help even in sloppiest pits. Auger moves forward, back or to either side under own power. (RIGHT)

Do You Know?

● A new method of predicting the reliability of equipment—how long parts will last before failure—has been devised by a mathematician.

The mathematical method is reported by Dr. R. F. Drenick of the Bell Telephone Laboratories, Murray Hill, N. J., in the current Journal of the Society of Industrial and Applied Mathematics published here in Baltimore, Md.

Reliability of equipment receives particular attention from manufacturers of electronic devices because such equipment is complex. An obstacle to his mathematical study, Dr. Drenick found, was that the term "reliability" seems to have different meanings to different persons and sometimes different meanings to the same person in different contexts.

Dr. Drenick found a new concept of reliability that is more general than current usage, but that reduces to concepts commonly used under appropriate conditions.

● Dramatic demonstrations and reports at the annual meeting of the American Association of Plastic Surgeons showed how operations can transfer bones, tendons and skin from one part of the body to another to rebuild a usable hand.

Ten patients of Drs. William H. Frackelton and Jack L. Teasley, Milwaukee plastic surgeons, came to the meeting to show what had been done for them. Most of the men had been injured in industrial accidents in which fingers were crushed, skin torn away, nerves and tendons severed.

Eight had a series of operations that enabled them to use their hands. Seven could return to their former jobs. Only two had to have amputations and had to be fitted with artificial hands.

"A single finger with sensation and movement," the doctors said, "performs better than any artificial hand thus far conceived."

One of the men had lost four fingers from his right hand, retaining only the index finger. An operation that transferred tendon and skin and deepened the cleft between his forefinger and the stump of his thumb enabled him to write and pick up objects.

Reporting on seven operations on small children born without thumbs or with a rudimentary thumb, the British surgeon, Dr. David N. Matthews of the Hospital for Sick Children in London said that in each case he turned the child's index finger into a useful thumb by shortening it and shaping the discarded bone into a peg. He then fitted one end of the peg into the hand and the other into the forefinger.

HERE AND THERE IN THE COAL INDUSTRY



Guy Mack Davis

● State Equipment Company announces the appointment of Guy Mack Davis, who will be handling industrial accounts in Allegheny County, excepting those within the confines of the Allegheny and Monongahela Rivers. Mr. Davis was formerly employed by the Beatty G. M. C. Truck Company, as a salesman, and prior to this he owned a Cumberland Bus Line in Cumberland, Maryland. He has been associated with State Equipment Company since July 27, 1959, and resides with his wife at 142 Cherry Dell Drive in Pittsburgh.

● E. M. Nassey, of Richmond, Va., President of Massey Coal Mining Co., has been elected a member of the American Institute of Mining, Metallurgical, and Petroleum Engineers. He will be affiliated with the Society of Mining Engineers, a constituent organization of the Institute.

● The Pittsburgh and Midway Coal Mining Company has signed a long-term agreement with the Arizona Public Service Company, Phoenix, Arizona, to supply coal for a new 110 kilowatt steam electric generating station to be built near Joseph City, Arizona, at a cost of about 19 million dollars.

In announcing the Agreement, Edwin R. Phelps, President of the coal company, termed it "A significant step toward greater use of coal as an energy source in the Southwest." Phelps said that Pittsburgh and Midway will supply the plant's needs from its extensive coal reserves in New Mexico. Initial mining operations will be conducted west of Gallup, where a new open-cut mine capable of producing one million tons of coal annually is being prepared. Construction will begin in the spring of 1961 with the schedule calling for the mine to be in production by January, 1962.

The coal will be transported to the power plant by the Santa Fe Railroad, who will build a spur track to the mine. This transportation facility will make the mine production available to other coal users, which should boost the industrial growth of the area.

"The agreement with the Arizona Public Service Company is the first major contract with a large scale coal burning power plant in the Southwest and is the beginning of a trend toward the use of coal as a dependable and economical boiler fuel. It should stimulate utility and industrial growth and mark the beginning of a new era in the Southwest," Phelps pointed out.



Minnehaha Mine averaged 2700 tons of raw coal per day with two units of Jeffrey equipment working two shifts per day over a period of 22 months.

"Performance miraculous; costs reasonable" with conventional Jeffrey units at Minnehaha



Jeffrey 70-UR Cutting Machine.

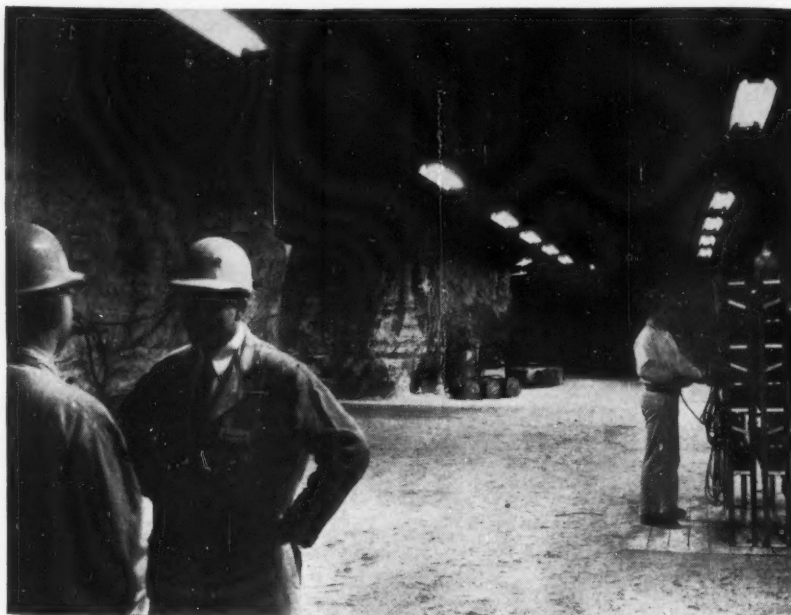
Impressive results with Jeffrey equipment—drilling machines, shuttle cars, loading machines, cutting machines—are reported by the Minnehaha Mine of Fairview Collieries Corp., Sullivan, Ind. Management states that maintenance costs have been exceptionally low—and performance way beyond expectation.

SYSTEM PLANNING—The wide range of Jeffrey equipment in use was chosen on recommendations of an experienced Jeffrey sales engineer. While each unit is a solid performer itself, it takes experience to match and integrate the various pieces of equipment to give top performance of the whole mining system. Jeffrey analyzes the complete job—and comes up with recommendations to help you realize low-cost production.

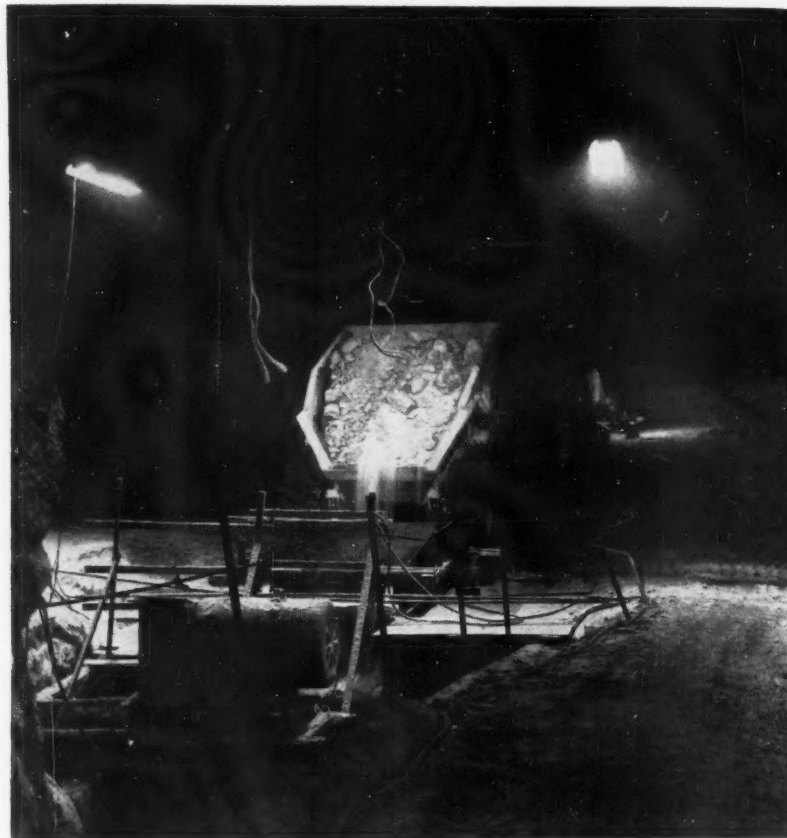
ONE-STOP SERVICE—Standardizing on Jeffrey equipment streamlines maintenance and ordering of renewal parts, too. Minnehaha gets topnotch service from the Jeffrey warehouse in Evansville. Here, replacement parts are stocked for immediate delivery.

Use the Jeffrey system-planning approach—you'll find it pays off. The Jeffrey Manufacturing Company, 969 North Fourth Street, Columbus 16, Ohio.





Entry room for the mine is a startling sight to the unexpectant visitor who finds the large mine has pleasant light of up to 30 footcandles. Visitors from General Electric, William M. Rogers and O. Thomas Neal exchange reactions while awaiting Morton Salt Company guide H. Werner, who is selecting his faithful miner's cap lamp from the recharging rack. The room is used for equipment storage and to move equipment to and from the shaft to the surface located at the far rear of the room.



Twenty-two tons roar from this mammoth truck to a conveyor leading to the salt crushing operation. The area is safely illuminated by two two-lamp fixtures housing G-E Power Groove fluorescent lamps. Better lighting provided by Power Groove permits faster unloading.

Power Groove Fluorescent Lamps Light Nation's Deepest Salt Mine

● Two-thousand feet beneath the surface, General Electric Power Groove configured fluorescent lamps are being used to light up Morton Salt Company's mine, according to E. A. Lindsay, supervisor of Industrial Lighting Applications for General Electric.

Power Groove lighting of key areas in the mine is credited by R. G. Ganong, Mine Manager of the Morton Salt Company, with helping to improve safety, miner comfort, and production.

A ride down the personnel shaft consume a darkening two-minute and twenty seconds. Prepared for arrival in a darkened area illuminated only by a traditional string of bare incandescent bulbs, the visitor is greeted by a surprise 30 footcandles of light in a mammoth entry cavern.

This is the assembly area where equipment is stored and moved to and from the shaft. Here, for instance, is the battery charger rack for miners' cap lamps needed deeper in the recesses of the mine.

The entry cavern is lit by two-lamp Power Groove fixtures. Suspended four feet from the twenty-foot ceiling, the fixtures provide about 30 footcandles in this room after nine months of two-shift operation.

In the background one can hear the roar of a giant fan circulating precious air throughout the mine. Past this "wind-tunnel" fan lies the heart of the mine's operation, the electric control room.

Here two Power Groove lamps in each of six fixtures deliver about

20 footcandles in the long, relatively narrow "room". All of the mine's electric power passes through the controls in this room.

At the mine face, one finds undercutters at work with the aid of a moveable four-lamp PAR bulb system. When a section has been undercut, giant borers move in under similar portable lighting to drill holes for 48 dynamite charges.

After blasting, salt is moved up a gathering head loader to trucks with its man-height tires capable of carrying 22 tons. From the mine face, the trucks speed through the mine's caverns to an unloading station.

Here Power Grooves fixtures provide about 10 footcandles to the area where the truck dumps its salt load into a recessed hopper and crusher. A conveyor then carries the salt to a second crusher and storage bin.

The crushing room is also illuminated by Power Groove fixtures delivering about 20 footcandles helping provide for safety and improved machine operation and maintenance conditions.

There it is loaded into a 10-ton capacity skip which hoists the salt upward through a second 2000 foot shaft.

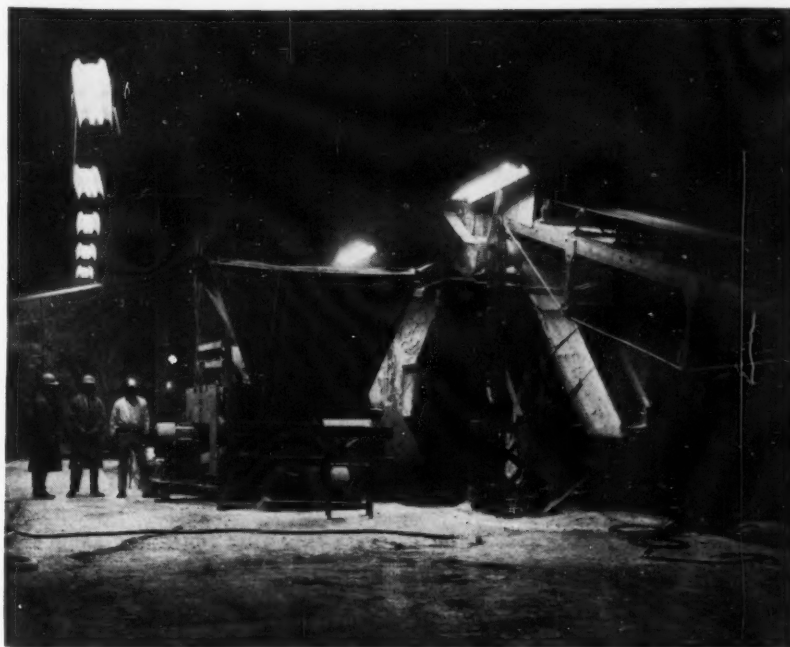
Linsday pointed out that operation in a salt mine provides a stern test for General Electric Power Groove fluorescent lamps. Dust accumulation naturally diminishes the light output from the fixtures, he said, yet the loss after a nine-month period has not been as serious as with previous lighting methods.

Most important there have been no burnouts after an estimated 3000 hours of operation, representing an important savings in troublesome maintenance.

The lighting units were installed in September, 1959, by Cleveland contractor W. W. Clark Corp. The fixtures are suspended from conduit spiked into the mine's ceilings.



Nerve Center of the mine is this electric control room. Six two-lamp fixtures of Power Groove fluorescents provide up to 20 footcandles in this high-voltage area. H. Werner and General Electric representative Tom Neal study the lighting.



Crushing salt in this portion of Morton Salt's Fairport Harbor mine is accomplished under 20 footcandles of light from nine two-lamp fixtures of G-E Power Groove configured fluorescent lamps. This is the final step before salt is carried up 10-ton capacity skips in the shaft at the rear of this area. Good lighting here promotes safety and helps improve production and maintenance operations.

SIX SAFETY SUGGESTIONS

STIMULATING INTEREST IN A COAL MINE'S SAFETY PROGRAM
IS A NEVER ENDING TASK. HERE ARE SIX WAYS YOU CAN
KEEP INTEREST IN SAFETY ALIVE IN YOUR MINE.

By H. E. CARROLL

Accidents, as you know, cost money. In addition to the out-of-pocket expense for medical treatment and equipment repairs, there are many other hidden costs—lost time, higher insurance premiums, overhead, lower morale, and the executive time spent in investigation.

Safety programs provide an answer. If interest of the employees is kept at a high level, safety programs can go a long way in reducing the accident rate in your mine. Here are six ideas to spark your safety program:

Safety Jury

You can make your employees feel they are part of the act in the safety program when they have something to do. The safety jury is one way to keep everyone safety conscious and to handle safety problems in a fair and just manner.

This jury is selected from the employees by the management or by the employees. They serve for a month, six months or a year depending on the plan established. Whenever there is an accident the safety jury listens to the evidence in the case and makes a decision—carelessness or the need for safer equipment.

Another function of the safety jury is to pass on all safety equipment purchased. Also, they help establish the safety rules for the mine and set up procedure for handling accident cases or unsafe practices.

Some executives feel that it is best to have one or more members of the management team on the safety jury. Others feel that it accomplishes more when the em-

ployees select and participate on the jury themselves.

Daily Safety Report

Paper work does not make safe work. But, the daily safety report does have value in keeping the accident rate at a low level. Mentioning safety once a week or once a month doesn't build a strong impression. But, when there is a daily or a twice a day reminder of safety, the message is driven home to the employees and to the supervisor.

You may find that the daily safety report will give your safety program a new lift. One plan is to have the report completed at the end of each shift. It reports any accidents (however minor) and lists any unsafe conditions and makes any safety suggestions that come up.

Another daily report idea is to have a two-part report. The first part is completed after a safety inspection at the start of the shift. The second part of the report is the result of the shift's activity in safe practices.

In addition to keeping your employees and supervisors more safety conscious, the daily safety report can bring forth some warnings of unsafe conditions and valuable suggestions for your safety program.

Safety Ads

You may find this a valuable idea to spark the safety program. It not only reaches present employees, but prospective employees and the general public. It reminds your employees of safety and announces to everyone that you have a safe place to work.

Briefly, this plan takes small space in your local newspaper each day. One-column by one-inch is enough space to tell your safety story. Copy for the ad tells how many days you have worked without an accident. Naturally, the copy needs to be changed each day. You can usually make a deal with your local newspaper to change the number each day unless notified that you have had an accident.

Home Safety

Encouraging home safety may seem like a left-handed approach to mine safety. However, it does accomplish the main purpose of any safety program—keeping everyone safety conscious.

You can encourage home safety by providing various types of booklets and pamphlets. These are either mailed to the employees at home or distributed at the mine to take home. This gives the employee's family a feeling that you are interested in the welfare of your employees . . . and since you are so concerned about home safety, they realize that the mine must be a safer place to work.

Local chapters of the Green Cross have booklets and other material that can provide plenty of fuel for the fire of home safety. And, in most cases you will find this organization more than willing to help you organize a program to encourage home safety.

Safety Awards

Recognition is one of the strongest motivating powers for anything.

Accident elimination can be improved when there is some form of recognition or award for safe workers in your mine.

One of the most obvious methods is to give safety cups or pins indicating the number of years the employee has gone without an accident. These awards are relatively inexpensive and the cost is very small when compared with the cost of accidents or higher insurance premiums.

Another plan is to post the photo of each employee on the bulletin board as he passes a certain landmark in safe service. For instance, when an employee has been in your employ a year without an accident, his photo is posted on a bulletin board for a week.

When this same employee passes the second year mark, his photo (or a new one) is again posted in the Safety Hall of Fame. A variation of this photo recognition idea is to keep the photo on display as long as the employee continues to observe safe practices.

Safety Publicity

Another way to keep everyone conscious of safety is to give your safety program local publicity. This idea can be incorporated with some of the other ideas or used separately. For instance, you can give the story to your local newspaper each time you distribute some home safety information. This will cause interest to increase at all levels for the news in the home safety program.

When your safety jury is selected, the news of this can be given publicity in your local newspaper—names and addresses of your employees serving on the safety jury make news. Or, a feature story about the activities of your safety jury would make interesting reading to local people.

Naturally, every safety award deserves publicity. It is news for the community and added recognition for the employee who has the safety record. Anything and everything you do to promote safety will make good local publicity—and give your safety program an added lift with your employees.



The nerve center of all research activities carried on by United States Steel Corporation is the Research Center at Monroeville, Pennsylvania. Above is an aerial view of the Center, showing the new Electromechanical Building at right. This new facility was officially opened May 17.



David and Goliath teamed up to save a \$720,000 equipment investment at Marshall Mining Co.'s strip mine near Youngstown, Ohio.

The giant, a 600-ton drag line shovel continued to sink into a mud pocket until its little earthmoving cousins, two Cat D9 tractors, dozed to the rescue. According to Ohio Machinery Co. vice president, Tom Taylor, each of the tractors weigh about 30 tons. Ohio Machinery Co. is dealer in the state for Caterpillar earthmoving equipment.

On its way cross-country over an old mine area, the huge stripping rig became mired in the loose wet earth used to fill the deep hole ten years ago. Down in the mud up to its turntable, the three story shovel was dug and pulled out by the 335 H. P. D9 tractors owned by the mining company to strip overburden.



Peaker Run Coal Company's Caterpillar D8 Tractor cleans up along a haul road near the open pit mine. This machine also benches for drills and spreads overburden removed by a model 1201 Lima shovel with 2½-yard bucket.

Flexible Operation Enables Peaker Run Coal Mine To Match Demand

● A flexible operation designed to vary with customer demand enables Peaker Run Coal Co., Marietta, Ohio, to produce as little as 5,000 tons or as much as 25,000 tons a month from its open pit Peaker Run Coal Mine. Annual production averages 200,000 tons.

Lying under 25 to 60 feet of overburden in a split seam, the coal is 24 inches thick above and 44 inches thick below a 12- to 24-inch seam

of shale. The top two feet of overburden is clay, followed by a 19 to 54 feet of sandstone and a four-foot layer of blue shale. Overburden is shot with ammonium nitrate, using dynamite primers.

Two model 1201 Lima shovels cast shot overburden into mined-out areas. One has a three-yard bucket and 42-foot boom; the other a 2½-yard bucket and a 35-foot boom. A Cat D9 Tractor works with the

larger and a Cat D8 Tractor with smaller, spreading cast overburden. The two tractors also bench for drills.

Coal is loaded into trucks by a model 34 Lima one-yard shovel and model 3000 Manitowoc 1¾-yard shovel. Peaker Run's truck fleet consists of nine model 190 and six model 180 IHC trucks. Other trucks are hired when needed. One-way

(Continued on Page 19)

**you can't do
today's jobs with
yesterday's equipment
and be in
business tomorrow...**





the best equipment is easiest to own

And the easiest to pay for! High-production, quality equipment gets all your jobs done in a hurry . . . gets to *more jobs* quicker, marks up *higher profits* . . . pays off machinery in a hurry.

An old veteran tractor may be doing your work but it could be missing as much profit as it earns. Why? Low production and down time.

You can easily change that picture to high production and dependability. And it's an easy step from a farm-type machine to a new 933 Traxcavator or D4 Tractor. Come see us, your Caterpillar Dealer, and talk to us about your work. Talk to us about financing to suit your operations. Let us show you how you could do *more work* with a Caterpillar machine . . . and make more money.

Your success depends on your equipment

CATERPILLAR

PROFIT WITH CAT D4C and D6B TRACTORS

Built like their big brothers—tough, fast, dependable, powerful. Better than ever, with new work-styled design and these features: New compact Cat Diesel Engines that deliver 25% more lugging ability • New integral hydraulic systems • Coordinated controls • Clean comfortable operator's area • Dry-type air cleaners • Lifetime lubricated track rollers . . . require no maintenance, service or lubrication until rebuilding • Forward-reverse lever.

PROFIT WITH THE CAT 933 TRAXCAVATOR

The 933 Series F Traxcavator offers you new power, new performance and new work capacity • 1½ cu. yd. bucket—12% more than Series E • New engine, new power train, new operating ease • Exclusive automatic bucket controls free operator's hands for maneuvering • Trouble-free Caterpillar Oil Clutch works hundreds of hours without adjustment • Heavy-duty undercarriage—toughest in its class • Job-matched work speeds.

PROFIT WITH NEW CAT NO. 112 Series E and Series F MOTOR GRADERS

New Turbocharged Series F No. 112 with 100 HP, Series E has 85 HP. Both machines have all the time-proved Caterpillar features: Exclusive Cat built Oil Clutch • Positive mechanical controls • Long radius, curved side shift rack gives ditch cut to bank cut in seconds without link adjustment • Convenient in-seat starting • Rigid triple-box section main frame • Leaning front wheels • See-the-blade visibility • Oscillating tandem drive.



JOBS:

**Clearing
Scraper loading
Grading
Ripping
Pulling compactors**

The tougher the job, the more you need a Cat Diesel Tractor! Cost records prove Caterpillar track-type Tractors out-produce other makes, last longer, have less down time.



JOBS:

**Excavating
Stockpiling
Loading
Laying pipe
Backfilling
Scarifying
Grading
Clearing land**

Compare the Cat 933 Traxcavator with the machine you now own. Again, it may be missing a lot of profit for you. Save on labor, do more work, maintain one machine instead of several... it's just good business.



JOBS:

**Grading
Ditching
Scarifying
Bank sloping
Terracing
Removing snow**

Compare Cat Motor Graders with all others—ease of handling—production—dealer service—and owning and operating costs. Hundreds of owners' records prove Caterpillar Motor Graders' last costs are lowest of all—often by thousands of dollars.

**we'll do
more to help
you make
money
on every job:**

We'll help you *PLAN FOR PROFITS!*



Our earthmoving specialists are ready to help you any time. We'll help you analyze power and machine requirements, plan a job and recommend the equipment that best serves your needs. We know the importance of keeping your machine working—our parts and service are at your call day or night. You'll find it's a pleasure lots of ways to do business with your Caterpillar Dealer.

We'll help you with *TERMS!*



Our realistic credit policies help you buy now and pay as you work the equipment—with financing tailored to your needs. Let us help you arrange convenient terms.

**SEE US BEFORE YOU BUY
ANY MACHINE!**

YOUR CATERPILLAR DEALER

BECKWITH MACHINERY COMPANY

6550 Hamilton Avenue, Pittsburgh, Pa.
Old Town Road, Clearfield, Pa.
361-369 Congress St., Bradford, Pa.
1356 E. 12th St., Erie, Pa.
Route 219 North, Somerset, Pa.
Buckhannon Pike, Clarksburg, W. Va.

OHIO MACHINERY CO.

6606 Schaaf Road, Cleveland, Ohio
930 Kinnear Road, Columbus, Ohio
2807 Reynolds Road, Toledo, Ohio
U.S. Route 250, Cadiz, Ohio
4000 Lake Park Road, Youngstown, Ohio

WALKER MACHINERY CO.

Route 60 East, Belle, W. Va.
4010 Emerson Ave., Route #2, Parkersburg, W. Va.

CM-10

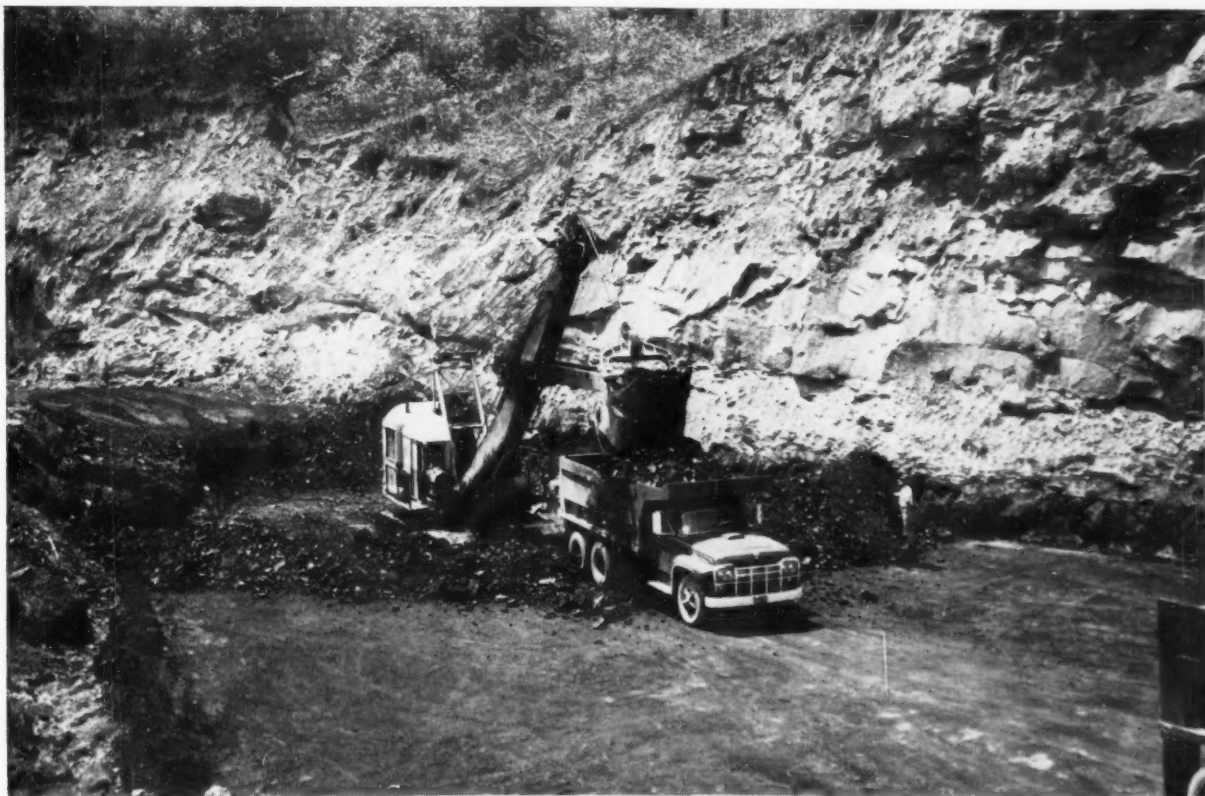


We'll help you with *COST RECORDS!*

Ask us for a free copy of the Cost Record Book. We'll help you set up cost records on each machine so you can prove to yourself the ones that are making money.

CATERPILLAR

Caterpillar, Cat and Traxxavator are Registered Trademarks of Caterpillar Tractor Co.



Coal from the Peaker Run mine is loaded into a truck by a model 34 Lima shovel, the smaller of two shovels used for this operation. Mine production averages 200,000 tons a year.

(Continued from Page 14)

hauls range from 30 to 40 miles.

About 30 percent of the mine's output goes to Union Carbide Metals Co., a division of Union Carbide and Carbon; the rest to Monongahela Power Co.

Holes for blasting are sunk by truck-mounted Davey drills. Six-and-a-half-inch holes are drilled in three rows on 15-foot centers. Deepest holes are 60 feet, requiring 260 pounds of explosives. A 200-foot section of overburden is shot at one time, using 17 millisecond delays.

The company also owns a Caterpillar No. 12 Motor Grader which is used to clean coal off the top of seams and to maintain haul roads. A Cat D6 Tractor is used to clean up around the coal shovels.

Peaker Run Coal Company began in 1946 as a one-shovel operation. It now employs 38 men. Philip L. Crecelius is president. Dean E. Lovett is general superintendent, W. L. Dotson, foreman.



Davey Rotary Drill . . . Peaker Run Coal Co.



A chalkboard, which is part of International Harvester Company's Scheduled Maintenance program for construction equipment, shows at a glance the "due" dates of all inspections.

System of Scheduled Maintenance Developed

● Periodic maintenance programs have been around for a long time. Many, unfortunately, are too complicated to be practical, and others lose their effectiveness because they are anchored to a maze of paper work.

International Harvester, following thorough investigation and testing, now has developed a new system — Scheduled Maintenance — that has the twin blessings of simplicity and a minimum of record keeping.

To implement this development, only three basic forms are needed—the Operator's Shift Ticket, the Scheduled Maintenance Control Record and the actual Inspection and Report sheets. Backbone of the system is the operator's ticket, as good maintenance must begin with the operator.

The Operator's Shift Ticket is filled out by the operator at the end of his shift and a record of hours worked, final hour meter reading, loads handled and mention of any mechanical details requiring attention.

This practice of reporting small problems before they lead to major

failures has the effect of giving the operator a share of the responsibility for keeping his machine in prime condition. Systematic use of the shift ticket makes correction of minor problems no more than one shift away.

To take full advantage of the information contained in the Operator's Shift Ticket, it must be posted daily to the Scheduled Maintenance Control Record, which tells the equipment owner the exact hour meter reading of the next maintenance inspection and enables him to forecast the approximate inspection date.

A chalkboard is the favorite method used by many owners to control inspections. At a glance, these boards show the "due dates" of all inspections. Indicating overdue inspections in red is an easy way of keeping maintenance men on their toes.

The actual Inspection and Record sheets are the final forms required to complete International Harvester's Scheduled Maintenance program. Listing the maintenance checks in a natural order minimizes

starting and stopping the engines, eliminates extra leg work and lost motion.

And one of the beauties of this program is that only a bare minimum of writing is required. A check mark is used for an O. K., an "R" for repairs, and an "O" for adjusted.

The same is true of the time factor. Only about two per cent of the normal available operating hours are needed to perform the necessary checks. If inspections are made after hours, no production time whatsoever is lost.

The new IH Job Cost Records — although not actually part of the Scheduled Maintenance system — have a value that should not be overlooked. Accurate cost records are invaluable for job estimating purposes, and are extremely useful at income tax time.

Forms have been devised that make it an effortless procedure to record fuel consumption and fuel expense, oil and grease requirements working time compared with lubrication, maintenance, standby and down time. Also included are production records and repair costs.

An interesting feature of the Scheduled Maintenance program is the handy envelope that holds all the records for one machine. The outside of the envelope lists the special equipment on the unit, the lube change periods, filter numbers and other information that a construction equipment owner likes to have available instantly.

As we said here in the beginning, periodic maintenance programs — also called “preventive maintenance” by some (we prefer scheduled maintenance, as a more accurate description)—are nothing new in the construction equipment industry.

Yet, some owners have not been completely sold on the advantages of such programs. This is hard to understand because saving the owner money (always an attractive subject) is the only reason for a Scheduled Maintenance program's existence.

This economy feature is accomplished through reducing overtime working hours needed to get deadlined equipment back in the dirt and the need of having fewer standby units available to keep the job roll-

ing.

Confusion will be minimized as a result of scheduling maintenance work through the shop. The equipment superintendent, master mechanic, dirt foreman and all others will be a healthier and happier crew, with less frustration and fewer problems all along the line.

For the benefit of the “unconvinced,” here is an actual example of “Scheduled” costs versus “Unscheduled” costs:

The average labor time for a 1,000 hour inspection of a heavy-duty truck is 30 man hours, or approximately \$75. If this is not done and just one drive wheel planetary is lost, your “Unscheduled” costs could be:

1. Down time	\$ 100
2. Bearing failure	40
3. Related parts	1,200
(could run to \$3,600)	
4. Labor, plus 50 per cent overtime labor	200
Total:	\$1,540

Plus—Lost production of dependent equipment.

Or, should a pusher be lost for lack of maintenance on a three-scraper job, with each moving 150

yards of dirt at 38 cents per yard, four days down time will cost \$7,044. Add to this figure the parts, labor and overtime pay necessary to get the pusher back in action and any owner can readily appreciate that this is not the way to move dirt profitably.

Given a fair trial, Scheduled Maintenance's effect on your expense and production records will be a resounding clincher.

● P. R. PAULICK, Consulting Mining Engineer with world wide mining work experience having done mining development work in China, Formosa, Japan, France, Germany, Nova Scotia, and all over the U. S. A., will tour Europe by car this summer from July 15 to October 15 covering such countries as France, Germany, Switzerland, Italy, Monaco, Yugoslavia, Czechoslovakia, and Hungary.



P. R. Paulick

An interesting feature of this tour is that after all plans for the European tour had been completed, he unexpectedly received an invitation to present a paper on American mining methods at the Hungarian Mining & Metallurgical Society mining congress which will be held in Budapest, Hungary, September 12 to 18th.

It appears that Mr. Paulick will be one of the few American visitors at this mining congress convention —although all the European countries will be represented—and definitely will be the only American speaker on the program.



INTERNATIONAL TD-25 CRAWLER clears face and levels work bench to be used by auger (in background) at Bell-Hi Coal Company, Middlesboro, Ky. The company strips and augers, taking out high quality coal used for domestic purposes and by-products. The 64,000-pound compton auger drills twin 24-inch holes to an average depth of 150 feet, is shifter to various locations by the TD-25 through a cable attached to the crawler's drawbar.



Dragline making box cut at the Ted Mesmer & Son strip operation.

Ted Mesmer & Son Strip And Auger At Bergholz, Ohio

● At Bergholz, Ohio, the Ohio number six seam of coal running 26 to 40 inches thick is present in flat area as well as in hills. In flat area a dragline, making box cut and tractor on spoil are used to recover the

coal. Dragline and tractors are also used for stripping coal in the hills. When prohibitive height is reached with present equipment, highwall is augered with a McCarthy Auger having 32 inch head. Two men with

two haulage trucks working on this auger produce a long time average of 300 tons, working a 10 hour shift. When high coal is augered as much as 700 tons have been produced with this same crew.



Caterpillar D-9 tractor cleaning pit for augering.



Allis-Chalmers HD-21 tractor working with dragline in box cut area.



McCarthy Auger in 36 inch coal in hilly area.

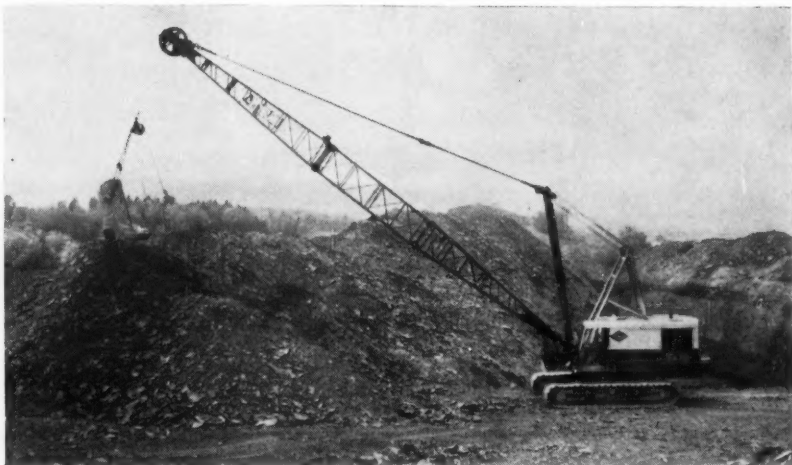
New Equipment Speeds Coal Stripping

This magazine's photographer has watched strip mining since its birth.

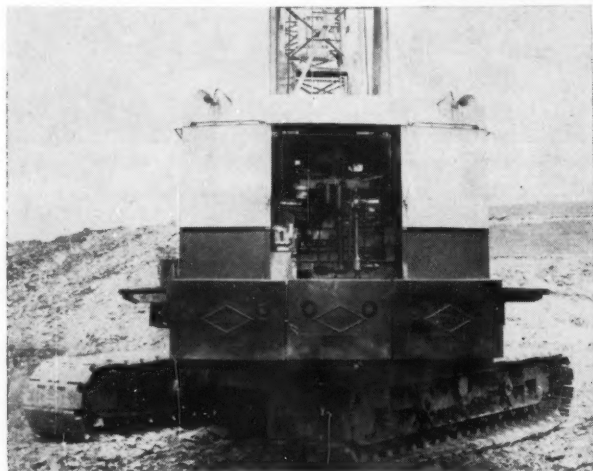
I have observed its lusty infancy and have seen it grow into a great industry.

Today, more than ever, I am thrilled by the extent to which new and improved equipment is speeding production . . . stripping better coal faster and cheaper.

Photos on this page show typical strip-mining machinery in action. They depict scenes that are being duplicated constantly . . . everywhere that coal is stripped.



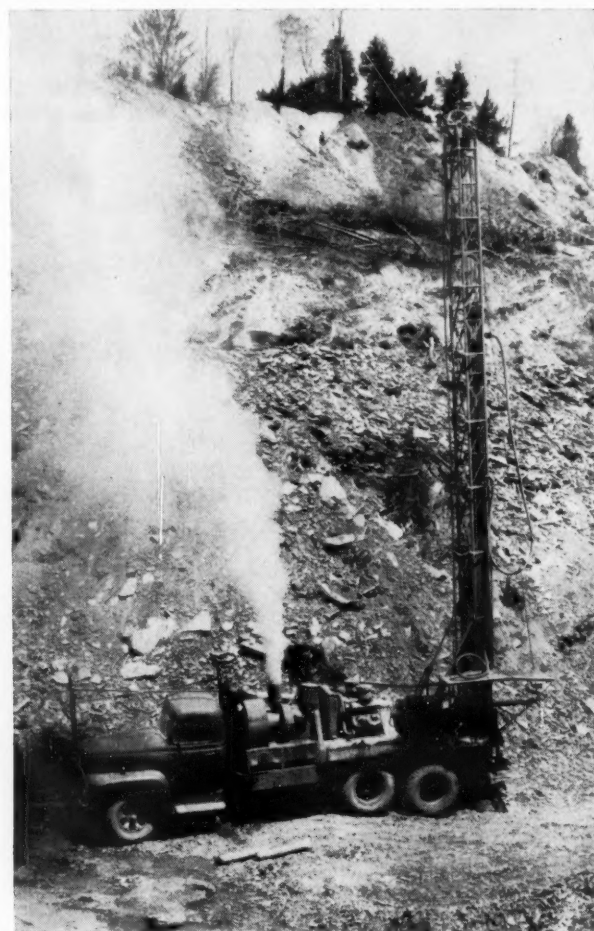
▲ Lima 1250 in Benezett, Pa. pit of P & N Coal Co. Sold by Highway Equipment Company.



▲ P & N Coal Co. Lima 1250 is powered by Allis-Chalmers 21000 engine.



▲ Allis-Chalmers HD-21 at K & J Coal Co., Lanse, Pa. Sold by Highway Equipment Company with headquarters in Pittsburgh and branches in Erie and Du Bois.



▲ Davey Rotary Drill at Benjamin Coal Co., LaJose, Pa. This is drilling 18 to 20 ft. holes after mud cover is stripped off. Overburden is 40 to 50 ft. Rock is not encountered until about 20 ft. above coal. Drill was sold by Stockdale Mine Supply Co., Frostburg.



Russ Reasinger, Foreman,
Penn State Coal Co., Du Bois.

“ALLIS-CHALMERS tractors have always given us good service...”

...Russ Reasinger, Penn State Coal Co., Du Bois, Pa.

“We use our Allis-Chalmers tractors hard,” says Mr. Reasinger, Penn State foreman. “But they easily handle the toughest jobs... stand up under real abuse... and keep right on giving dependable, trouble-free service.”

“Track life is excellent... we make important labor and money savings because it's not necessary to grease rollers. With normal maintenance, we've never had any final drive trouble of any sort.”

Penn State Coal Co. purchased its first Allis-Chalmers

Tractors (HD-19s) in 1947. It replaced these with HD-20s and is now using 225 h.p. HD-21s.

These big, new HD-21s save up to 27% on fuel used by units of comparable size. Their shock-absorbing all-metal main frames, durable double-reduction final drives, certified permanent lubrication of tapered roller bearing truck wheels, idlers and rollers... **EXTRA TOUGH TRACKS** keep them working 'round the clock with minimum maintenance.

A-2865A



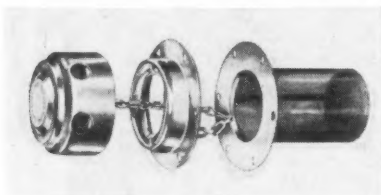
Highway

HIGHWAY EQUIPMENT COMPANY

6465 Hamilton Ave. • Pittsburgh 6, Pa.
40 Hoover Ave. • Du Bois, Pa.
5245 Peach St. • Erie, Pa.

SERVICE... Regular hours — 8 a.m. to 3 a.m. daily. Open 24 hours for emergency work.
87 factory-trained mechanics...32 traveling service trucks...23,800 different parts in stock.

● A new filler cap with 30-mesh brass wire screen for hydraulic fluid and oil reservoirs is in production at The LENZ Company, Dayton, Ohio. This is one of the first filler cap assemblies, to offer 30-mesh protection. Breather caps are of the vented type of cadmium plated



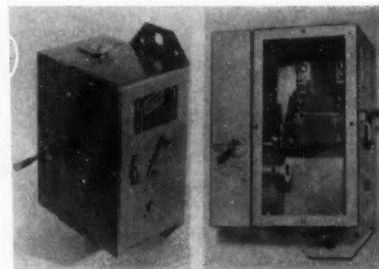
steel, with twist locking action that fastens securely into the flange. As-

semblies are available with or without cap chain. The close neck flange is also of cadmium plated steel with six 7/32" flange holes drilled on a 2-7/8" circle. The quality constructed screen is 3-inches deep and 1-5/16" in diameter.

Catalogs of accessories, tube and hose fittings are available upon request from The LENZ Company, Dayton 1, Ohio.

● A pilot circuit device of the pull-cord type for control of underground mine and other extensive conveyor installations has been introduced by Schroeder Brothers Corporation

of McKees Rocks, Pa., designers and engineers of special mining equipment. It is marketed as the Jabco Belt Switch.



The new Switch operates from either or both directions, and has one "on" and two "off" positions. The second "off" is a safety feature as two pulls on the cord are required to start the conveyor.

The Jabco Switch keeps a belt conveyor under control at all times and will start or stop it at any point along its entire length. Rock falls on the belt usually pull the cord, halting the conveyor and minimizing the damage.

The Jabco Belt Switch, enclosed in a 5"x7-1/4"x9-1/8" metal housing, may be mounted in any position on a sturdy surface or pole. An emergency lever on the housing for hand control and a safety "lock-out" attachment that holds the Switch locked in the "off" position during maintenance and loading are provided.

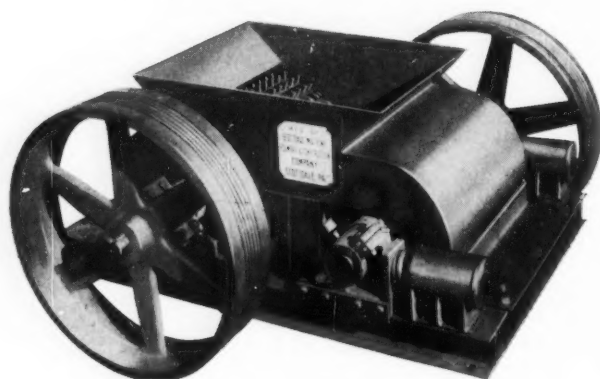
Bulletin No. 660, published by the Schroeder Company, describes the Jabco Belt Switch in detail and is available for the asking.

● An electronic device that throws a shield around outside equipment is being manufactured by the Diebold Safe Co., Canton, Ohio. An alarm is sounded when an intruder nears or touches the protected equipment. The device can be connected to a leased wire to sound an alarm at the nearest police station.

* * *

A handlike, flexible, workshop device for holding and positioning small work is marketed by the Superior Welding Co., Los Angeles, Calif. It is very useful in assembling work or in welded small parts.

SCOTTDALÉ DOUBLE ROLL CRUSHERS



ECONOMICAL - takes less power

EFFICIENT - more uniform product

The powerful chilled cast iron double rolls of the 63 special are covered with hundreds of steel teeth which speedily bite, chew and shred the coal to any wanted size from 3/4" to 8" . . . fines are held to a low minimum.

This 2 motor drive machine has gears but is equipped with 2 easily

maintained grooved flywheels. One welded steel hopper is mounted on a 46" x 65" welded steel base. Weighing only 4800 pounds and powered with 2-10 H. P. motors the crusher has a top speed of 150 RPM's with a capacity of 60 to 250 tons per hour. Comes with bronze bushed journal bearings.

Send for literature.

SCOTTDALÉ

MACHINE, FOUNDRY & CONSTRUCTION CO.

DEPT. CM

BOX 51

SCOTTDALÉ, PA.

GUYAN MACHINERY CO., Logan, W. Va. stock SCOTTDALÉ CRUSHERS

● R. W. Knode, general manager of sales, mining division, The Jeffrey Manufacturing Co., Columbus, O., has announced the appointment of Paul R. Williams as assistant service manager, mining division, reporting to E. H. Hebden. Williams has been associated with the coal industry since 1949 after graduation from the University of Kentucky. Before joining Jeffrey he was maintenance superintendent, Pocahontas Fuel Company; also served as industrial manager with T. C. & I.; and mining superintendent, U. S. Steel Corporation, Lynch, Ky.

* * *

Robert D. Greer was named sales engineer, apparatus sales, mining division, reporting to W. F. Roberts. An Ohio State University graduate, Greer has been associated with Inland Steel as assistant mine superintendent, and assistant superintendent, power and maintenance; more recently as assistant service manager and assistant product manager with an equipment manufacturer.

● A new bulletin, descriptive of Velvetouch Feramic Brake Blocks, is announced by The S. K. Wellman Company, Bedford, Ohio.

Produced primarily for trucks, tractors, trailers, construction and off highway industrial equipment, blocks are made of sintered iron powders fused directly to solid steel backing plates. Forward and reverse blocks have identical friction material. This greatly simplifies stocking and installation.

Other features include sharp wiper edges whose continuous cleansing action keeps drums free of damaging dirt, grease and water. Hole patterns match F.M.S.I. standards and counter-sunk bolt and rivet holes are claimed to provide many miles of extra braking. Blocks are said to be unaffected by oil, grease and moisture.

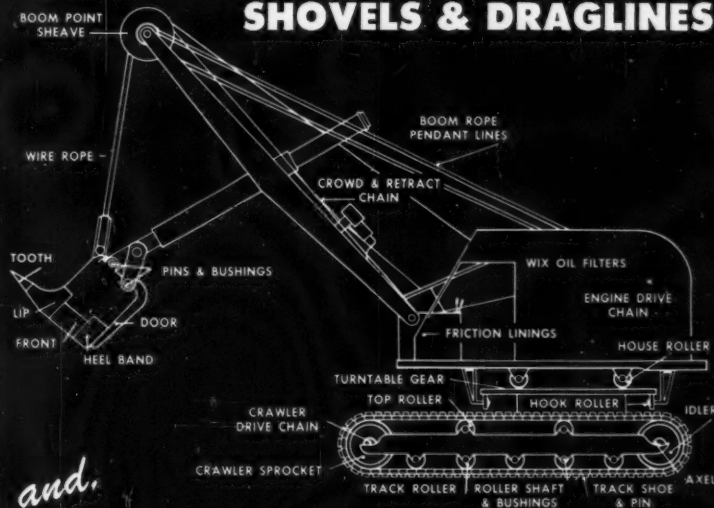
Among operating characteristics is reputed to be absence of fade caused by heat, water, downhill and high speed travel.

For bulletin copies, write The S. K. Wellman Company, 200 Egbert Road, Bedford, Ohio. Ask for L-1392A.



Removing overburden in order that a seam of coal can be mined, is the job of a Manitowoc Model 3500 shovel owned by the Smith Contracting Co. of Butler, Penna. The action takes place 2 miles West of Chicora, Penna., where the Manitowoc works on a continuing basis.

QUALITY REPLACEMENT PARTS FOR SHOVELS & DRAGLINES



In a most modern and well equipped rebuilding shop

REBUILD TO STANDARD

TRACK SHOES • TRACK IDLERS • TRACK SPROCKETS • BUSHINGS
HOOK ROLLERS • HOUSE ROLLERS • TRACK ROLLERS • SHAFTS • DIPPERS

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308,822 yds. a month
in first quarter 1959, working 572 hrs. a month



Page Diesel Model 726, with 12 yd. bucket and 150 ft. boom, has averaged over 300,000 yds. a month for five years in overburden averaging 80 ft.—Sandstone, shale and limestone.

Have you ever seen such yardage — in such tough overburden?

It takes a Page to do it. Unusually fast swing, and correspondingly fast hoist line, adds up to quicker cycles and **MORE YARDAGE**.

And the rugged strength that's built into these machines is giving owners the least downtime, and lowest maintenance per yard, they've ever had.

Get our estimate of your own stripping costs with a Page. Write, wire or phone —

FRANK SWABB EQUIPMENT COMPANY

Hazleton National Bank Bldg., Hazleton, Pa.

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For High Production and Lowest Operating costs —

NOTHING equals this PAGE 700 series
SINGLE DECK WALKING DRAGLINES

NOT RUNNING FOR PRESIDENT!

The promises we make are not based on politics—you can believe every word: We'll Buy any quantity of Mining Equipment or complete Mines including Railroads at any time you want to sell and at fair prices always. We'll Sell anything for the efficient mining of coal from one part to an entire mine, including tipples, and guarantee to save you money.

JOY EQUIPMENT—REBUILT

- 3—Joy 14BU Loaders, low pedestal, 7AE, '56 & '57.
- 6—Joy 14BU Loaders, medium pedestal, 7RBE.
- 1—Joy 14BU 7CE high pedestal loader.
- 4—Joy 14BU 3PE Loaders.
- 12—Joy 10E Joy Loaders complete with Piggybacks.
- 2—Joy 12BU Loaders, 9E, latest type 250 V DC.
- 5—12BU Loaders 220/440 Volt AC.
- 1—Joy 20HU Loader, latest type.
- 4—Joy 11BU Loaders, latest type.
- 1—Joy 8BU Loader, 34" overall height.
- 2—Joy 8BU Loaders, 220 volt AC.
- 1—Joy curved Bar Head, complete.
- 6—Reliance 24-J Motors, 7½ H.P.
- 4—Reliance 38-J Motors, 10 H.P.
- 20—9-J Motors, 4 H.P.
- 2—Goodman 660 Loaders on Crawlers 440 volt AC, like new.
- 1—Goodman 660 Loader on Crawlers, excellent 250 V. DC.
- 1—Goodman 665 Loader on Crawlers, latest type 250 V. DC.
- 1—Goodman 855 Loader 26" hi. Rebuilt. 250 V. DC.
- 4—Joy 8SC Shuttle Cars, Rebuilt.
- 4—Joy 6SC Shuttle Cars, rebuilt, latest type.
- 1—Joy 5SC Shuttle Cars, Excellent.
- 2—Joy 32E9 Shuttle Cars.
- 2—Joy 32E10 Shuttle Cars, rebuilt.
- 2—Joy 32E15 Shuttle Cars, rebuilt.
- 4—Joy 32E16 Shuttle Cars, rebuilt.
- 10—Joy 42E10 Shuttle Cars, rebuilt.
- 2—Joy CD-22 Drills, on rubber, like new.
- 6—Joy T-2-5 low pan Crawler Trucks, rebuilt.
- 1—Joy T-2-6 low pan Crawler Truck with reel.
- 2—Joy T-1 Standard Crawler Trucks, 220 AC.
- 1—Joy T-1 Standard Crawler Truck, 250 DC.
- 2—Goodman low pan Crawler Trucks, like new latest type.
- 4—Joy 11-B Cutting Machines, like new, 35 and 50 H.P.
- 1—Joy 7-H Cutting Machine, like new, 250 volt DC.
- 2—Goodman 212 Cutting Machines, 19" high.
- 4—Goodman 312 Cutting Machines, 17" high.
- 3—Goodman 412 Cutting Machines, 19" high.
- 1—Goodman Machine on Crawler, 31" high. All hydraulic.
- 2—Goodman 512 Machines 220/440 Volt AC.
- 6—Goodman 512 Machines with Bugdusters, 250 V. AC.
- 6—Goodman 612 cutting machines, 250 and 500 volt.
- 1—Lee Norse low vein Machine Carrier on rubber.
- 1—Jeffrey 70 URB rubber tired Cutter. Universal head, perfect condition.
- 1—Goodman 2410 rubber tired Cutter, Universal Head, like new.
- 3—Joy 11RU Rubber Tired Cutters with bugdusters, Universal heads, dual tires, like new, 250 V. DC.
- 2—Joy 10RU rubber tired cutters Universal head, 220/440 volt AC, perfect.
- 4—Joy 10RU rubber tired Cutters, Universal Head, 250 V. DC.
- 6—7AU's on track, Universal head.
- 2—Jeffrey 29UC Cutting Machines, Universal head, cuts anywhere in seam, 38" high, on Crawlers, 250 volt DC.
- 1—Jeffrey 29LC on Crawlers, rebuilt.

LOCOMOTIVES

- 1—Goodman 6 ton, 93-A, 27" high, armor plate frame.
- 1—Jeffrey 15 ton MH-77 Locomotive, Armor Plate frame.
- 3—Jeffrey, 13 ton, type MH-110, 36", 42", 44" ga.
- 2—Jeffrey, 10 ton, type MH-110, 42" and 44" Ga.
- 2—Jeffrey 10 ton, type MH-78, 42" and 44" Ga.
- 2—Goodman 8-30 and 10-30 Locomotives, 26" above rail.
- 1—Jeffrey MH-121, 4 ton, like new, with reel, 24" overall height.
- 2—Jeffrey, MH-150, 6 ton, 26" overall height, rebuilt with reel.
- 12—Jeffrey, 6 ton, type MH-88, 42", 44" and 48" Ga.
- 4—Jeffrey, 8 ton, type MH-100, 2½" armor plate frames.
- 1—Jeffrey, 6 ton, type 2186, 22" above rail.
- 3—Jeffrey, 4 ton, type MH-96, 42", 44" and 48" Ga.
- 1—G. E., 4 ton, type 825 Locomotive, 22" high.
- 10—G. E., 6 ton, types 801, 803, 821 Locomotives, 42", 44" and 48" Ga.
- 1—G. E. 8 ton, type 822 Locomotive, 44" Ga.
- 3—G. E. 10 ton, type 809 Locomotives, 42", 44", 48" Ga.
- 2—G. E. 13 ton type 829 Locomotives, armor plate frames.
- 1—Goodman 91A Locomotive, 8 ton, 26" overall height.
- 2—Goodman, type 33, 6 ton, 44" and 48" Ga.
- 3—Westinghouse, type 902, 4 ton, 42" and 48" Ga.
- 2—Atlas Battery Locomotives, 36" Ga.
- 1—Ironton Battery Locomotive, 4 ton, 24" high, excellent, with charger.

- 2—Westinghouse, type 904, 6 ton, 44" and 48" Ga.
- 1—Atlas Trolley Locomotive, 4 ton, 24" high.
- 2—Westinghouse, type 906, 44" and 48" Ga.
- 2—Westinghouse, type 907, 10 ton, 44" and 48" Ga.
- 8—Jeffrey MH-78 Locomotive Units, cheap.
- 4—Jeffrey MH-88 Locomotive Units, real bargains.
- 6—Jeffrey MH-100 Locomotive Units, reasonable.
- 3—Plymouth Diesel Locomotives, 8 and 10 tons, 42" and 44" Ga.

Locomotive Trucks and Spare Armatures for all the above.

TIPPLE EQUIPMENT

- 1—All steel 5 track Tipple, new 1957, complete with washer, silo, oil treating system, all bolted construction.
- 1—Complete Five Track Tipple with Washers and Air Tables.
- 1—Complete stoker plant, all steel.
- 2—Complete Tipples, 3 and 5 track, steel and wood.
- 3—Cleaning Plants, 1 Ea. McNally, Roberts and Schaefer, Jeffrey, Washers and Airflow Tables.
- 4—Complete Aerial Trams for coal or refuse.
- 3—Complete Rope and Button Lines.
- 2—Monitor Lines complete with Drums, excellent.
- 1—Allis-Chalmers 5' x 12" Ripple Vibrator.
- 1—Allis-Chalmers 4' x 12" Low-Head Vibrator.
- 1—Robins Gyrex Vibrator 4x10.
- 10—Belt and Apron type Loading Booms.
- 6—Shaker Screens.
- 1—Robins Car Shakeout.
- 20—Crushers, various sizes—Jeffrey McLanahan & McNally.
- 4—Mine Scales, 10 & 20 tons.
- 5—Truck Scales, 25 to 40 tons, late type.

Feeders, Belt and Drag Conveyors, Car Retarders,

CUTTING MACHINES

- 2—Joy 10RU rubber tired cutters, Universal head, 220/440 volt A.C. Perfect.
- 4—Joy 10RU rubber tired Cutters, Universal Head, 250 V. DC.
- 3—Joy 11RU, rubber tired Cutters, 250 V. DC.
- 1—Goodman 2410 rubber tired Cutter Universal Head, new, 1956, Excellent.
- 2—Jeffrey 29UC Universal Machines on Crawlers.
- 1—Goodman on Crawlers, 31" overall height.
- 3—Baby Goodman 212's, rebuilt, 250 Volt DC.
- 7—Goodman 212 cutting Machines, 19" high.
- 1—Goodman 312 Cutting Machines, 17" high.
- 3—Goodman 412 Cutting Machines, 19" high.
- 6—Goodman 512's with Bugdusters, like new.
- 4—Goodman 512's, rebuilt, or as removed from service.
- 6—Goodman 612's—250 & 500 V.
- 3—Goodman 112's 220/440 volt AC.
- 1—Joy 7-B Cutting Machine, 250 volt DC.
- 4—Joy 11B Cutting Machines, rebuilt, 35 and 50 H. P.
- 6—7 AU's, on track, Universal head.
- 10—Goodman 12AA's and 112AA's, 250 volt DC.
- 2—Goodman 324 Slabbers.
- 2—Goodman 724 Slabbers.
- 2—Goodman, 824 Slabbers.
- 6—Jeffrey 35L's, like new, 17" high.
- 2—Jeffrey 35L's on low vein trucks.
- 2—Jeffrey 35L's, 220/440 AC.
- 3—Jeffrey 35BB, 220/440 AC.
- 15—Jeffrey 35B's and 35BB's, 250 V. DC.
- 2—Jeffrey 29B's on track.
- 10—Jeffrey 29C's, track mounted.
- 2—Jeffrey 29L's on Crawlers, Excellent.
- 1—Sullivan CE7, 220/440 V. AC.

CONVEYORS

- 1—Robins 36" tandem drive, with or without structure.
- 1—Jeffrey 52-B tandem drive, 26" Belt Conveyor.
- 2—Jeffrey 52-B tandem drive 30" Belt Conveyor, 1,500'.
- 1—Joy 30" Underground Belt Conveyor, Excellent.
- 1—Goodman 97-C, 30" tandem drive.
- 1—Goodman 97-C, 26" Conveyor, 1,000' long.
- 1200' Robins 36" Underground Structure like new.
- 1,000'—Conveyor Belt 42".
- 4,000' Conveyor Belt 36".
- 4,000' Conveyor Belt 26".
- 8—Jeffrey 61AM 12" Chain Conveyors, 300'.
- 2—61EW Elevating Conveyors.
- 2—61WH 15" Room Conveyors, 300'.
- 2—Joy 15" Room Conveyors, 300'.
- 2—Joy 20" Conveyors, 300'.
- 4—Joy Ladel UN-17 Shakers.
- 10—Goodman G-12½ and G-15 Shakers.
- 1,000' Goodman 18" Flat Belt Conveyors, tandem drive, any length. Perfect.

CONVERTERS AND DIESEL PLANTS

- 1—300KW Portable Rectifier, 3 car unit, excellent.
- 2—500KW G. E. Stationary Rectifiers.
- 4—1,000KW Stationary Rectifiers.
- 2—100KW G. E. TCC-6's, 275 volt, Rotary Converters.
- 1—150KW, 6 phase, Allis-Chalmers Rotary Converter, 275 V. DC.

- 1—150KW, G. E. HCC-6, 275 v., Rotary Conv.
- 2—200KW G.E. HCC-6's, Rotary Converters, 275 V. DC. Steel Frames, Newly rewound.
- 3—300KW, G. E. HCC-6's Rotary Converters, 275 V. DC, like new
- 2—300KW Westinghouse, 6 phase, Rotary Converters, 275 volt DC.
- 2—500KW Westinghouse Rotary Converters, 275 volt DC.
- 2—200KW Westinghouse Rotary Converters, 275 V. DC. Newly rewound.
- (all the above with 4908/13000 and/or 2300/4800 primary transformers)
- 2—100 KW MG Sets, 275 volt DC.
- 2—150KW MG Sets, General Electric and Westinghouse, 275 V. DC.
- 1—200KW MG Set, Westinghouse, rebuilt, 275 V. DC.
- 1—200KW MG Set, General Electric, perfect, 275 volt DC.
- 2—300KW G. E. MG Sets, like new.
- 1—300 KW Westinghouse, 600 volt MG Set, rebuilt.
- 2—300KW Westinghouse, 600 volt, 6 phase, Rotary Converters.
- 2—500KW Westinghouse, 600 volt, DC, 6 phase, Rotary Converters.
- 2—500KW HCC-6's Rotary Converters, 6 phase, 600 volt DC.
- 1—GMC 471 Diesel with 60 KW, 250 volt DC Generator.
- 2—GMC-471 Diesels with 75 KW, 250 volt DC Generators.
- 1—Cummins 125 KW, Diesel with 250 volt DC Generator.
- 1—Allis Chalmers Natural Gas Engine with 100 KW Generator, 275 volt DC.
- Boilers, like new, 500 H.P.

LOADING MACHINES

- 16—Joy Loaders, 14BU, 12BU, 8BU, 11RU, 20BU.
- 5—Joy 12BU9E Loaders, 220/440 volt AC. Excellent.
- 3—Joy 12BU9E Loaders, latest type.
- 2—Joy 12BU with Piggyback Conveyors.
- 2—Goodman 865 Loaders, 26" on Crawlers.
- 1—Goodman 665 Loader, on Crawlers, rebuilt.
- 2—Goodman 660 Loaders, 440 volt AC perfect.
- 1—Goodman 660 Loader, on Crawlers, 250 V. DC.
- 1—Goodman 460, on track, Rebuilt, All Hydraulic.
- 2—Jeffrey 61 CLR's, on rubber, 26".
- 3—Jeffrey L-500 Loaders.
- 2—Myers Whaley, No. 3 Automatic Loaders.
- 2—Clarkson Loaders, 26" above rail.

MISCELLANEOUS

- 1—Complete Five Track Tipple with Washers and Air-Tables.
- 5—Complete Tipples, 3 to 5 Track. Wood and Steel.
- Steel Treatles for drop bottom cars.
- All Steel Armco Buildings.
- 20—Jeffrey Molyvators on rubber tires.
- 1—¾ Yard Shovel and Back-Hoe.
- 1—¾ Yard Crawler Crane.
- Battery Supply Tractors, rubber tired.
- 1—Cantrell Air Compressor on rubber tires.
- 10—Air Compressors, 1 H.P. to 40 H.P.
- 2—Joy self propelled rubber tired compressors, 240 cu. ft.
- 2—Acme self propelled rubber tired compressors, 130 cu. ft.
- 40 Mine Pump all types.
- 1—Differential 40 Passenger Man-Trip Car.
- 6—MSA Rock Dusters.
- 2—Phillips Carriers, 44" and 48" Ga.
- 1—Barber Greene self propelled Bucket Elevator.
- Pipe, Plastic, Steel, Transit, all sizes 1" to 6".
- 300 Mine Cars, drop bottom, 42" Ga.
- 90 Mine Cars, drop bottom, 44" ga.
- 50 Mine Cars, drop bottom, 48" Ga.
- 100 Mine Cars, 18" high, end dump, 44" Ga.
- 300 Mine Cars, end dump and drop bottom, 28" high, 48" Ga.
- 1—10 ton Mine Car Scale with Recorder.
- 15—Brown Fayro HKL and HG Car Spotters.
- 1—Brown Fayro Hydraulic Car Spotter.
- 1—12 ton Differential Slate Larry.
- Incline Hoists, 25 to 50 H.P.
- 1—Jeffrey 5' Aerodyne Fan, like new.
- 1—Jeffrey 6' Aerodyne Fan.
- 2—Storage Tanks, 4,000 Gallons.
- 2—Storage Tanks, 10,000 Gallons.
- 10,000 Five Gallon G. I. Cans, screw lids.
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- 300 Transformers from 1 to 300 KVA, 110 to 13,000 primary volts.
- 400 Electric Motors, 3 to 250 H.P.
- Huge stock of Mine Supplies.
- 500 MSA Mine Lamps, Chargers, etc.
- 4—Mine Scales, 10 & 20 ton.
- 3—Truck Scales, 25 to 40 ton, late type.
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● The many features which go into making Caterpillar sprockets last longer are briefly covered in an eight-page booklet, "Sprockets by Caterpillar," just released by the manufacturer.

Copies of "Sprockets by Caterpillar" may be obtained at Caterpillar dealerships or by writing to the Advertising Division, Caterpillar Tractor Co., Peoria, Ill., and requesting Form D-025.

HEAVY EXCAVATION EQUIPMENT

Draglines, Shovels, Cranes, Drills, Trucks

15-W Bucyrus Erie Elec. Drag, 215', 12 yd.
450-W Bucyrus Erie Diesel Drag, 165' with extra 10, 12, 13 and 14 yd. buckets.
9-W Bucyrus Erie Elec. Drag, 165', 10 yd.
9-W Bucyrus Erie Diesel Drag, 165', 12 yd.
7-W Bucyrus Erie Diesel Drag, 140', 7 yd.
7400 Marion Diesel Drag, 175', 13 yd.
71-B B.E. Crane with 160' boom
625 Page Diesel Drag, 150', 10 yd.
1855 P & H Diesel Drag, 130', 10 yd.
621-S Page Diesel Drag, 125', 7 yd.
200-W Bucyrus-Erie Diesel Drag, 125', 6 yd.
2400 Lima Elec. Drag, 130', 6 yd.
2400 Lima Diesel Drag, 130', 6 yd.
4500 Manitowoc Drag, 120', 5 yd.
120-B Bucyrus-Erie Elec. Drag, 115', 5 yd.
111-M Marion Drag, 100', 4 yd.
1055 P & H Diesel Drag, 80', 4 yd.
1601 Lima, 4 yd., Shovel/Drag
3900, 3500 & 3000 Manitowoc Cranes
5560 Marion 26 yd. Elec. Shovel
190-B B.E. 8 yd. Elec. Shovel
151-M Marion 7 yd. Elec. Shovel
1600 P & H 6 Yd. Elec. Shovels
170-B B.E. 6 yd. Elec. Shovel
4161 Marion 6 yd. Elec. Shovel
2400 Lima 6 yd. Std. & H. L. Shovels
120-B Bucyrus-Erie 4 yd. Elec. Shovel
4500 Manitowoc 5 yd. H. L. Shovel
1055 P & H 3 yd. H. L. Shovel
1201 Lima 3½ Yd. Standard Shovel
111-M Marion Standard & H. L. Shovels
3500 Manitowoc Standard & H. L. Shovels
54-B Bucyrus-Erie Standard & H. L. Shovels
Model T-650 REICHD, Truck Mounted Rotary and Down-The-Hole
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- Used LeRoi 365 CFM portable diesel driven Air Compressor—4 pneumatic tires, powered by model UD-18-A International engine. \$6,000. FOB Glenshaw, Pa.
- P&H Slightly used Model 755-B shovel, equipped with Caterpillar D-326 Diesel, Magnetorque swing clutches. Entirely reconditioned with new machine warranty, FOB Teterboro, N. J.
- P & H used model 1055 LC dragline, 80 ft. boom, 4 yard Page bucket. New AC turbo-charge diesel, new Clark torque converter. Also equipped with light plant. Good condition. \$40,000 FOB Somerset, Pa.
- Used Link-Belt K-595 dragline, 80 Ft. boom, 2½ yard Page bucket. Powered by Caterpillar D-17,000 Diesel. Swing shaft just rebuilt \$41,000 FOB Wellsboro, Pa.
- Hough H-L used ¾ yard, rebuilt I-H model U-9 gas engine. Dual 2-wheel drive. Good for stockpiling. \$3,500.
- Slightly used demonstrator PM model 440 front end loader, powered by GM 471 Diesel, 4 wheel drive Allison torque converter and 4-20; 5 x 25 tires. \$26,000 FOB Glenshaw, Pa.
- Ansco Simplex Teeth. The only reversible tooth in the industry. Guaranteed replacement against breakage.

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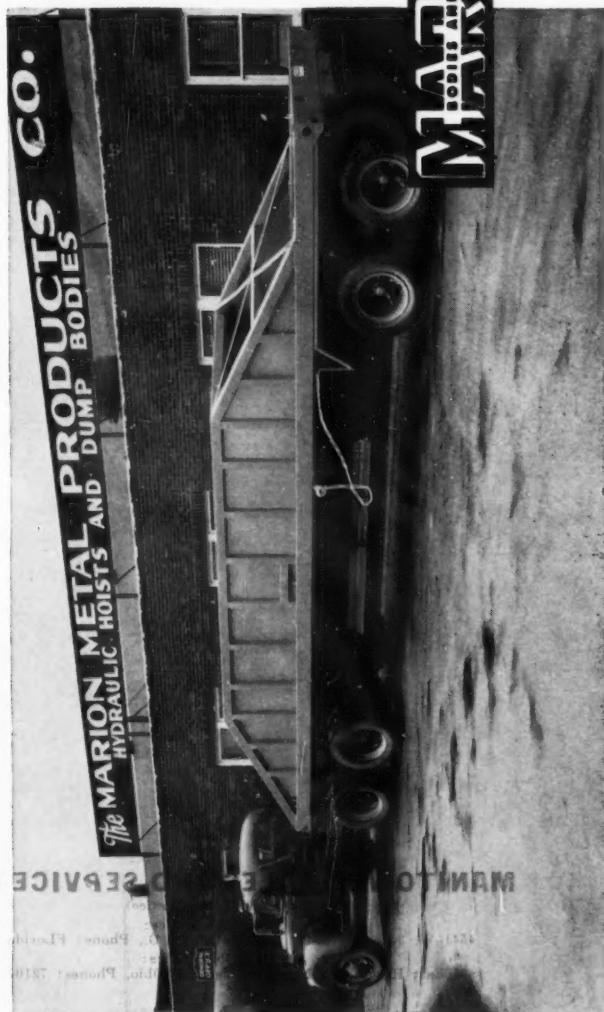
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• Design and engineering features which contribute to high productive capacity and long life in the new Caterpillar No. 12E Motor Grader are discussed fully in a 12-page booklet just released by Caterpillar Tractor Co.

Beginning with the new compact engine which powers the No. 12E, the publication works forward through the various components to point up the many advanced features which are incorporated in the machine.

Copies of the booklet, titled "Here's Why the Caterpillar No. 12 Series E Motor Grader Gives You Top Value," may be obtained from Caterpillar dealers or by writing the Advertising Division, Caterpillar Tractor Co., Peoria, Ill., and requesting Booklet No. 33799.

A big machine for a big job

Manitowoc dragline brings down 50 foot face of gravel . . . then re-handles the material by dredging 45 to 50 feet below water to supply Standard Slag Company washing plant.

The Standard Slag Company's Crystal Springs washing plant near Massillon, Ohio runs through 225 tons of gravel an hour to operate at top capacity. A Manitowoc Model 4500 dragline with a 5-yd. bucket is used as the primary producer of gravel for the plant. The drag is diesel-powered and is equipped with a 140-ft. boom, providing the great reach needed on this tough job.

The Manitowoc performs two functions: it reaches 50-ft. to pull gravel down into a lagoon, then re-handles the material by dredging for it 45 to 50-ft. below water level. From the lagoon the gravel is placed on a surge pile, except for a few cobbles larger than 24 inches in diameter. Under the center of the surge pile a reciprocating plate feeder moves 225 tons per

hour of gravel to an 1,800-ft. conveyor system leading to the processing plant.

The Manitowoc Model 4500 dragline is ideally suited to big scale operations of this sort because it combines unusual stability and long reach with a fast cycle and direct power flow. Modern, balanced design has produced a dragline with a big capacity, yet with the mobility of a two or three-yard rig.

And note that the Model 4500 has no clumsy electric cable trailing behind . . . no expensive, troublesome power installations to maintain. Low cost, easily-understood diesel-power lets you move quickly from one job location to another without the problem of available power. Moving long distances is just as simple, because this modern Manitowoc can be shipped on railroad flat cars and erected in three to five days.

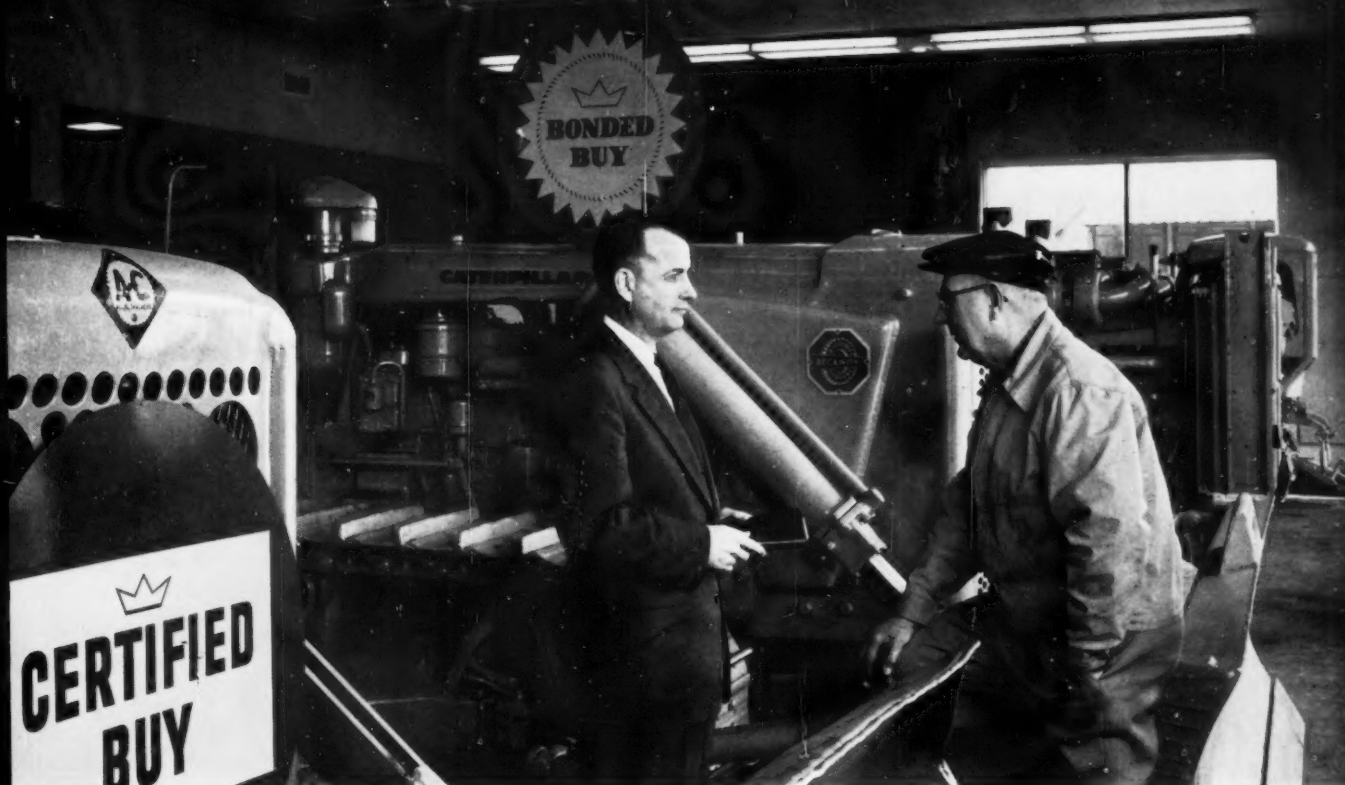
There's a lot more to this story . . . including convertibility to a big, 5½-yd. shovel or 100-ton crane. Get all the details . . . give your Manitowoc distributor a call right now!



Shovels 1¼-yd.—6-yd.
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As Fred Bentzel (left in photo above), Pittsburgh Sales Manager, says: "We at Beckwith are very conscious of our customers' problems in trying to make a reasonable profit in today's tough competitive market. And, although we sincerely believe that new Caterpillar earthmoving equipment yields the highest production and greatest profit, we also know that there are times when a wise buy in used machinery is more desirable. But the most important consideration the prospective buyer has to make is the *elimination of risk*. Our policies and system of operation eliminate risk . . . permit the used equipment shopper to *buy with confidence*."

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We have a large inventory, covering all makes and models in a wide price range to suit your job and your budget. Used equipment can play an important part in boosting your profits. Eliminate the risk . . . use discretion in your purchases . . . buy where you have complete confidence in the company selling the equipment. May we prove to you that Beckwith will help you get the greatest return . . . without headaches . . . from your used equipment purchase? Stop in to see us soon.

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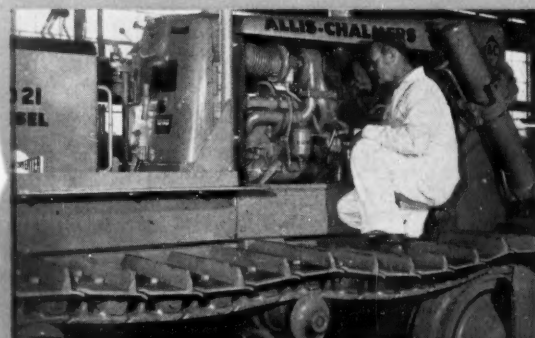
Repair service includes welding. Highway workman in photo is Art Charles.



Robert McClurg refaces engine valve.



Lubrication is important to smooth operation and long equipment life. At left, Tom Schiemer; right, Paul Green.



Engine expert Paul Mellott completes final check on new Allis-Chalmers HD-21.

